AMENDMENT NO. 4

RFP C6939RFP6-3X

Issue Date: April 10, 1996

Notice:

RFP C6939RFP6-3X is hereby amended as described below. In accordance with Section 13 of the RFP Cover Letter, Acknowledgment of Amendments to Solicitation, Offerors shall acknowledge receipt of any amendment to this solicitation (a) by signing and returning the amendment; (b) by identifying the amendment number and date when submitting an offer; or (c) by letter.

Description of Amendment:

A.   Attachment 1 - Model Subcontract, General Provisions

1.   Reference: Clause B27, entitled Patent Rights
                        Amendment No. 1, Rights in Data - General, Additional Paragraph
                        (g)(2), and Additional Paragraph (g)(3)

Notice of Advance Patent Rights Waiver and Authorization to Assert Copyright
You are hereby advised that the Department of Energy has authorized the following regarding Intellectual Property Rights for the ASCI Blue subcontract:

> "If the respondent to the RFP does not agree to cost-share at least 20% excluding waived fee, that respondent if successful would get the standard patent and data clauses in connection with such a procurement. On the other hand, if the respondent is willing to cost-share by an amount of at least 20% excluding waived fee, the DOE will agree to waive, in advance, patent rights to the respondent in its inventions and authorize the respondent to assert copyright in software produced under the contract."

The text of the DOE Memorandum, including provisions of any resultant waiver and modifications to the above referenced clauses, is attached hereto and made a part hereof.

Any comments regarding the language contained in the DOE memorandum shall be included in Volume III, Administrative Volume, of the Offeror's proposal. The University will not entertain questions regarding this memorandum prior to receipt of proposals.

B.   Attachment 2 - Statement of Work

1.   Revise specification 1.2.7 to read as follows:

        "1.2.7 Sustained TeraFLOP Performance Goal (MR)
        Demonstrate sustained TeraFLOP/s performance on the sPPM Science-Based Stockpile Stewardship application."

2.   Revise section 3.1, second to last paragraph above general delivery schedule table, subpart (3) to read as follows:

" . . . 3) a TeraFLOP/s system with a peak plus sustained performance of at least four (4.0) TeraFLOP/s; and"

3. Revise section 3.1, general schedule delivery table, "Metrics" for 2nd Quarter Calendar Year 1998 (2Q CY 1998), SST Delivery, to read as follows:

2Q CY 1998	SST Delivery	Sustained sPPM TFLOP/s performance. Memory to Peak FLOP/s ratio is 0.167. At least 25 TB RAID Disk

4. Revise section 3.1, general schedule delivery table, "Metrics" for 1st Quarter Calendar Year 1999 (Q1 CY 1999), Memory Upgrade, to read as follows:

Q1 CY 1999	Memory Upgrade	Increase memory to Peak FLOP/s of SST from 0.167 up to 0.5. Additional 50 TB RAID Disk.

5. Revise specification 4.1.1.1 to read as follows:

"4.1.1.1   Sustained Stewardship TeraFLOP SMP Scalable Cluster (MR)
The Subcontractor shall provide a Sustained Stewardship TeraFLOP/s (SST) system composed of multiple Shared memory Multi-Processors (SMPs) connected via a scalable intra-cluster communications technology. The system shall have a peak plus sustained performance on the sPPM benchmark of at least four (4.0) TeraFLOP/s. The Subcontractor shall provide a best effort to obtain a sustained performance of one (1.0) TeraFLOP/s (1.0×10^{12} floating point operations per second) on the sPPM benchmark.

Example: If "p" is the peak performance of the system and "s" is the sustained on sPPM performance of the system, and if we define the machine efficiency as e = s/p, then the above equation becomes:

$$p(e) \quad 4.0/(1.0+e)$$

Hence,
    p(1/2)   4/1.5   2.67, p(1/3)   4/1.33 = 3.0 and p(1/5)   4/1.2 = 3.3 "

6. Revise specification 4.1.1.2, bullet 3 and bullet 4 to read as follows:

"•   Cache Bandwidth/Peak FP (Byte/s/FLOP/s)   4"
"•   Memory Bandwidth/Peak FP (Byte/s/FLOP/s)   1"

7. Add the following sentence to the end of specification 4.2.12:

"The proposed system will be installed in a classified area at the Laboratory and so analyst personnel shall obtain DOE Q clearances."

8. Change Mandatory Requirement 4.2.3.5 to a Target Requirement as follows:

"4.2.3.4   Cluster Wide Job Management (TR)
A job may be a cluster wide abstraction similar to a POSIX session, with certain characteristics and attributes. Commands may be available to manipulate a job as a single entity (including kill, modify, query characteristics, and query state). The characteristics and attributes required for each session type are as follows: 1) interactive session: an interactive session include all cluster wide processes executed as a child (whether direct or indirect through other processes) of a login shell and include the login shell process as well. Normally, the login shell process exists in a process chain as follows: init, inetd, [telnetd | rlogind | xterm | cron], then shell. 2) batch session: a batch session includes all cluster wide processes executed as a child (whether direct or indirect through other processes) of a shell process executed as a child process of a batch system shepherd process, and includes the batch system shepherd process as well. 3) ftp session: an ftp session includes an ftpd and all its child processes. 4) kernel session: all processes with a pid of 0. 5) idle session: this session does not necessarily actually consist of identifiable processes. It is a pseudo-session used to report the lack of use of resources. 6) system session: all processes owned by root that are not a part of any other session."

9.   Revise the last sentence of specification 4.2.3.5 to read as follows:

"These configurable load levels shall be defined on CPU load, available memory, paging rate (if applicable), available swap and temporary disk space."

10.   Add the following sentence to the end of specification 5.2.12:

"The proposed system will be installed in a classified area at the Laboratory and so analyst personnel shall obtain DOE Q clearances."

11.   Add the following sentence to the end of specification 6.2.4:

"The proposed system will be installed in a classified area at the Laboratory and so analyst personnel shall obtain DOE Q clearances."

12.   Add the following sentence to the end of specification 6.2.8:

"The proposed system will be installed in a classified area at the Laboratory and so analyst personnel shall obtain DOE Q clearances."

13.   Revise specification 6.2.10 to read as follows:

"6.2.10   Sustained Stewardship TeraFLOP (SST) Demonstration (TR)
The Subcontractor may demonstrate the SST scalable cluster in mid CY 1998 containing 0.5 Terabytes (TB) of memory. The sum of peak and sustained performance on the sPPM demonstration code of the SST scalable cluster shall be at least four (4.0) TeraFLOP/s."

14.   Revise specification 6.2.12 to read as follows:

"6.2.12   Sustained Stewardship TeraFLOP (SST) Demonstration (MR)
The Subcontractor shall demonstrate the SST scalable cluster no later than the end CY 1998 containing 0.5 Terabytes (TB) of memory. The sum of peak and sustained performance on the sPPM demonstration code of the SST scalable cluster shall be at least four (4.0) TeraFLOP/s."

15.   Add mandatory specification requirement (MR) 6.2.16 as follows:

"6.2.16   Disk Delivery (MR)
The Subcontractor shall deliver the remaining 50 Terabytes of disk within 12 months of SST delivery."

16.   Add target specification requirement (TR) 6.2.17 as follows:

"6.2.17   Faster Disk Delivery (TR)
The Subcontractor may deliver the remaining 50 Terabytes of disk within 6 months of SST delivery."

17.   Revise third sentence of paragraph one of specification 6.4 to read as follows:

"Its use as an SST demonstration is to validate the ASCI effort by demonstrating a sustained TeraFLOP/s computation across all processors of a cluster of SMPs for a single large application which is of direct interest to the DOE Stockpile Stewardship Program as well as to scientific simulation in general."

18.   Revise first sentence of paragraph two of specification 6.4 to read as follows:

"The Subcontractor shall provide a best effort to achieve a sustained one (1.0) TeraFLOP/s execution rate of the sPPM benchmark code across the entire SST."

19.   Revise sentence seven of paragraph three of specification 6.4 to read as follows:

"The time for initialization, visualization and restart dumps will not be included in the TeraFLOP/s rate determination - visualization and restart dumps could even be disabled."

C.   Attachment 3 - Proposal Preparation Instructions

1.   Revise Section C.2, Memory Upgrade Pricing, first sentence to read as follows:

"The price provided for the Memory Upgrade mandatory option, identified in specification 6.2.15, shall be a not-to-exceed price."

2.   Replace Attachment 2, Appendix A, Mandatory Requirements, in its entirety with Appendix A Mandadory Requirements dated April 10, 1996.

3.   Replace Attachment 3, Appendix B, Mandatory Requirement Pricing Schedule, in its entirety with Mandatory Requirements Pricing Schedule dated April 10, 1996.

4.   Replace Attachment 3, Appendix B, Target Requirement Pricing Schedule, in its entirety with Target Requirements Pricing Schedule dated April 10, 1996.

5.   Replace Attachment 3, Appendix B, Summary of Pricing Schedule, in its entirety with Summary of Pricing Schedule dated April 10, 1996.

6.   Replace Attachment 3, Appendix C, Milestone Pricing Schedule, in its entirety with Milestone Pricing Schedule dated April 9, 1996.

Change pages reflecting the above revisions are attached hereto and made a part hereof.

All other terms and conditions remain unchanged.